

# (12) UK Patent Application (19) GB (11) 2 024 112 A

(21) Application No 7925842

(22) Date of filing

25 Jul 1979

(23) Claims filed

25 Jul 1979

(30) Priority data

(31) 16343/78

(32) 25 Apr 1978

(33) United Kingdom (GB)

(43) Application published

9 Jan 1980

(51) INT CL<sup>3</sup> B63B 7/08

(52) Domestic classification

B7A 113 218 234 710

DR

(56) Documents cited

GB 974208

GB 920588

GB 500577

GB 436336

US 3871316A

US 3848858A

US 3608112A

(58) Field of search

B7A

(71) Applicant

Jon Ayrton Montgomery

84 Broom Park

Teddington

Middlesex

(72) Inventor

Jon Ayrton Montgomery

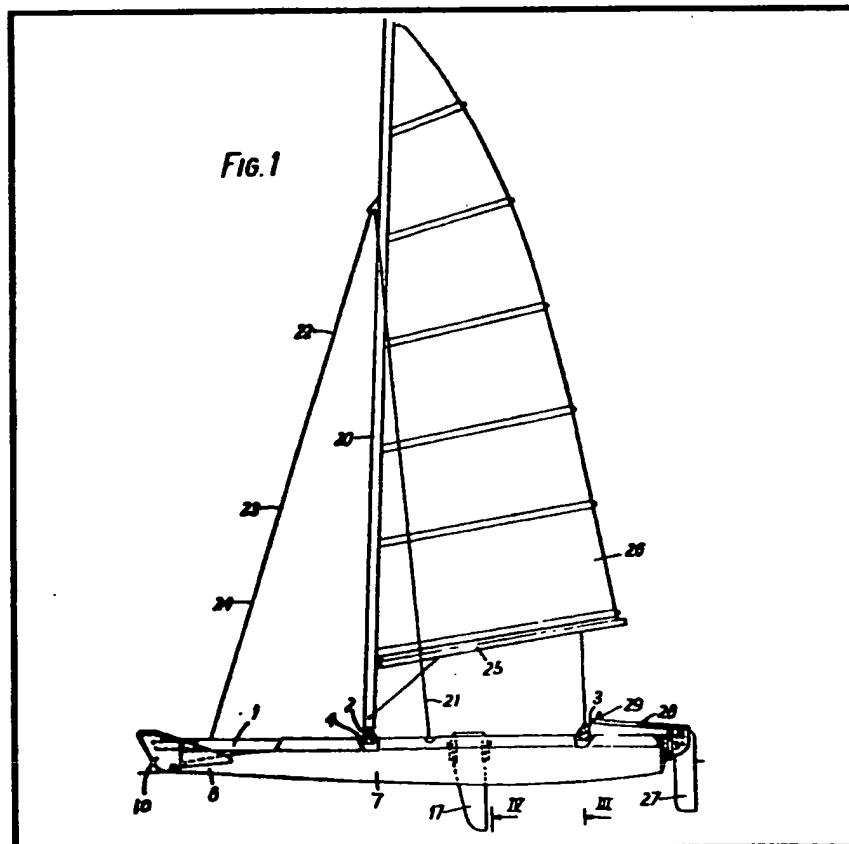
(74) Agents

Reddie & Grose

(54) Multi-hull boat

(57) A catamaran comprises a pair of inflatable tubular hulls 7. A longitudinal beam 1 is secured to the top of each hull 7 and extends along the whole length thereof. A pair of spaced cross beams 3, 4 are rigidly secured to the longitudinal beams 1.

The forward end of each hull 7 tapers down to a point 8 spaced below the beam 1 and a narrow raked bow-stem 10 interconnects the beam 1 and hull point 8 to act as a conventional bow. A pair of dagger boards 17 are arranged one adjacent each hull and a mast 20 is stepped on one of the cross beams and stayed to the longitudinal beams 1.



GB 2024 112 A

FIG. 1

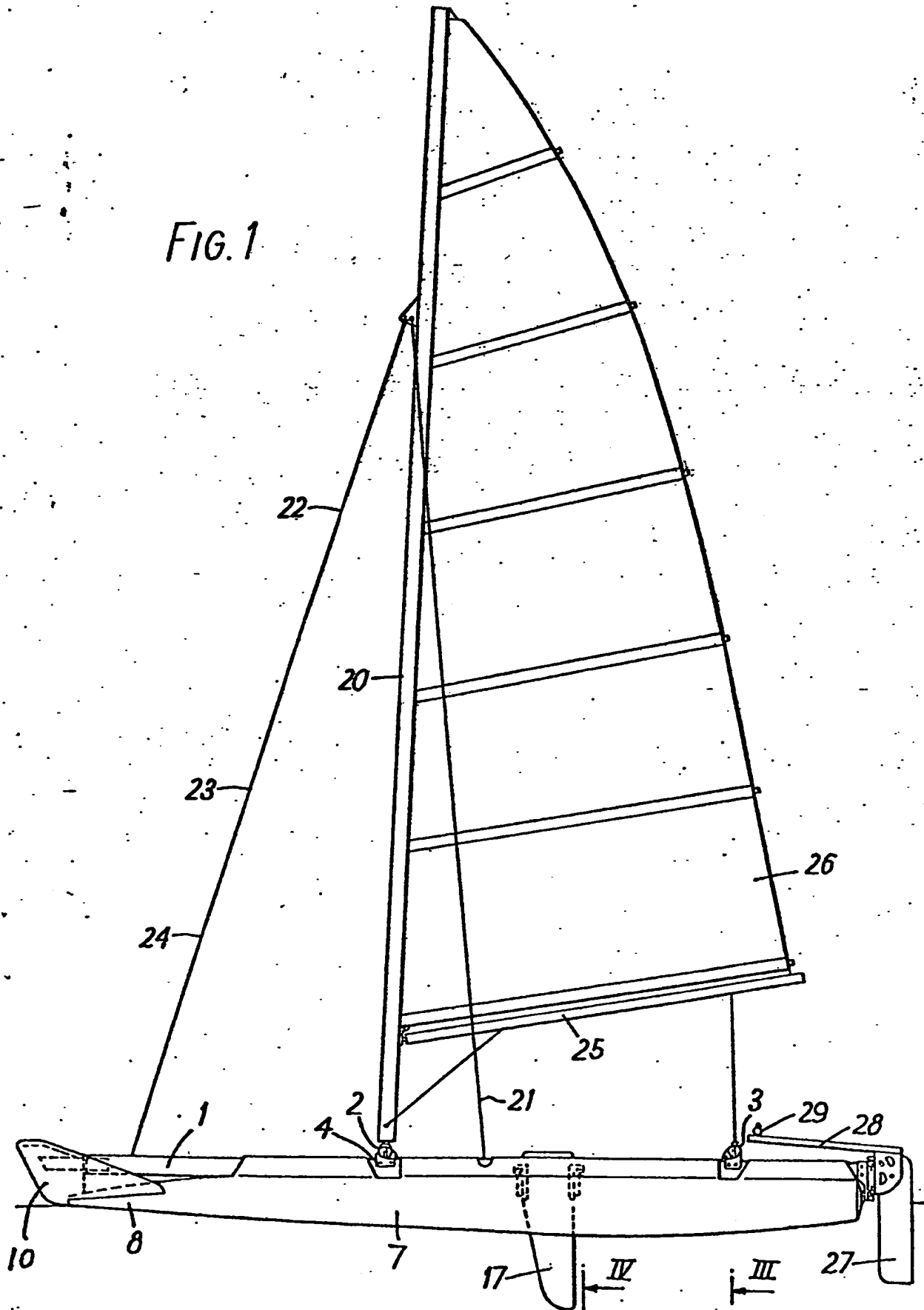


FIG. 2

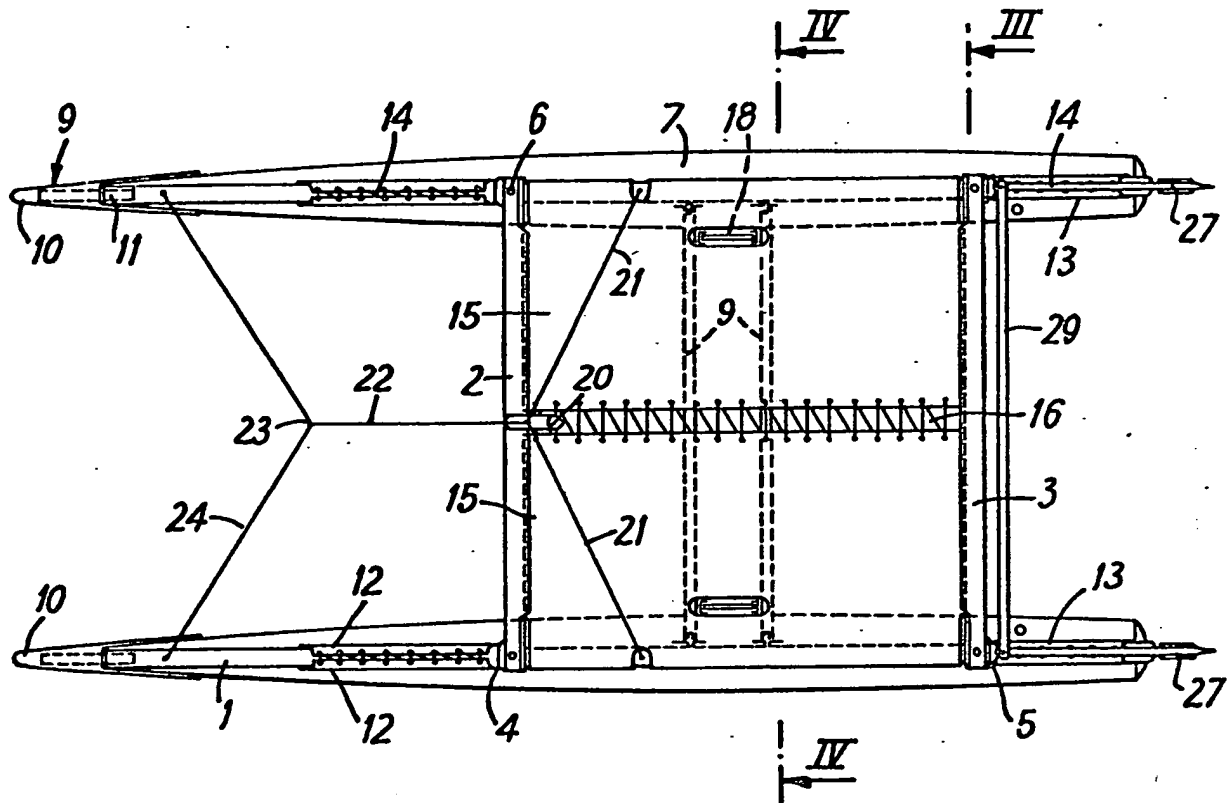


FIG. 3

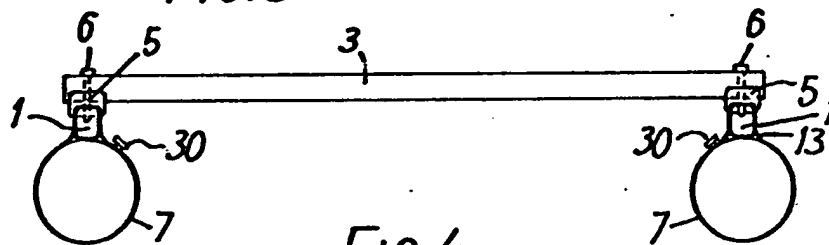
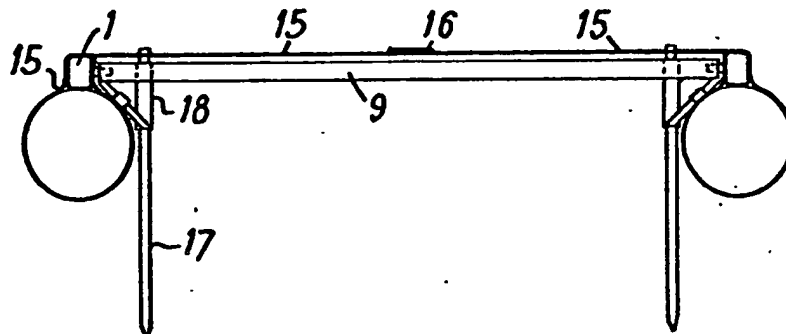


FIG. 4



## SPECIFICATION

## Multi-hull boat

5 The present invention relates to multi-hull boats of the kind comprising a pair of inflatable hulls. One such boat has been proposed in U.S. Patent Specification No. 3,473,502.

According to the present invention there is  
10 provided a boat comprising a pair of inflatable hulls, a pair of torsionally stiff longitudinal beams, each beam being attached or attachable to the top of a respective hull and extending substantially the whole length of the hull  
15 when the latter is inflated, and a pair of cross beams for interconnecting the longitudinal beams at spaced positions along the lengths of the longitudinal beams and means for securing the cross beams to the longitudinal  
20 beams against torques generated in the longitudinal beams.

Advantageously, the forward cross beam is located in a suitable position for a mast to be stepped on it to form a sailing boat. Forestays  
25 for the mast can then be anchored to the forward ends of the longitudinal beams.

In a preferred arrangement, the inflatable part of each hull tapers down towards a point at the bow end of the hull and thus has a bow  
30 portion which is spaced below the general axis of the longitudinal beam and means are provided for spacing the said bow end of the inflatable portion of the hull a fixed predetermined distance below the axis of the beam.  
35 Preferably, these means comprise a stiff bow stem fixed to the bow end of the inflatable hull portion and to the forward end of the longitudinal beam. Such a bow stem may have the shape and dimensions which would  
40 be used for a rigid hull of a similar boat, thereby being capable of slicing through waves whereas the blunt rounded nose of the hulls shown in U.S. Specification No. 3,473,502 would offer such resistance to  
45 waves as to stop the boat or severely affect its handling as when a wave hits one bow nose before the other.

A rudder may be pivotally mounted at the aft end of each of the longitudinal beams, the  
50 tillers of the two rudders being interconnected by a tie rod. A pair of dagger-boards can be mounted for vertical sliding movement in dagger boxes, one adjacent each hull, the dagger boxes being supported by two further cross  
55 beams anchored to the longitudinal beams.

A trampoline deck can be secured to the longitudinal and cross beams and tightened by suitable lacing. The longitudinal beams can be secured to their respective inflatable hull  
60 portions again by suitable lacing.

An embodiment of the invention will now be described by way of example with reference to the accompanying drawings, in which:—

65 *Figure 1* is an elevational view of a catama-

ran having inflatable hulls;

*Figure 2* is a plan view of the catamaran shown in *Fig. 1*; and

*Figures 3 and 4* are cross sectional views  
70 respectively on the lines III-III and IV-IV of *Figs. 1* and *2*.

The catamaran shown in the drawings has a tubular aluminium frame comprising two longitudinal tubular beams 1 interconnected by  
75 two tubular cross beams 2 and 3 which have their ends held securely in saddle castings 4 and 5 on the longitudinal beams 1 by through bolts 6. The saddle castings 4 and 5 may be secured to the longitudinal beams 1 by adhesive bonding and riveting. The ends of the cross beams 2 and 3 preferably contain in-  
80 serts to prevent the ends of the tubular beams 2 and 3 collapsing under the tension of the bolts 6.

Each longitudinal beam 1 is secured to the top surface of an inflatable hull 7 which is of greatest cross section in the region between the two cross beams 2 and 3 and tapers  
85 down to a smaller cross section both at the aft end and at the elongated forward end of each hull which is accordingly spaced from the forward end of the longitudinal beam 1. The inflatable hull 7 may for example be made of a rubberised fabric or PVC.

Bonded to the forward end 8 of each hull is a bow stem 9 which can be made of plywood or fibre reinforced plastics material and which presents a stiff raked bow-forming portion 10 capable of slicing through waves and carry-  
95 ing two lateral wings which extend rearwardly and have some flexibility to conform to the flexibility of the inflatable hull portion. Each bow stem 9 carries a rearwardly extending spigot 11 which engages in the forward end  
100 of its longitudinal beam 1. Each inflatable hull 7 is secured to its longitudinal beam 1 by means of pairs of flaps 12 and 13 respectively forwards of the cross beam 2 and aft of the cross beam 3, the flaps being bonded to the hull and tightened around the longitudinal  
105 beam 1 by means of lacing 14. In the part between the two cross beams 2 and 3, each inflatable hull 7 has bonded to it half of a trampoline deck 15 which, adjacent its outer  
110 edge forms a pocket for the longitudinal beam 1. The two half decks 15 are tightly secured together by further lacing 16.

A pair of dagger boards 17 are vertically slideable in "U" section chamber 18 fixed to  
120 a pair of square tube cross members 19 the outer ends of which engaged on spigots fixed to the longitudinal beam 1. The channels 18 are braced to the tubes 9 by diagonal braces 31 which are engaged by straps 32 to assist  
125 in keeping the hulls in the correct attitude. Suitable apertures are formed in the trampoline deck portions 15 to permit the passage of the upper ends of the dagger boards 17 upwards.

130 A jointed mast 20 has its lower end

stepped in a suitable seating at the mid-point of the cross beam 2 and is stayed by a pair of lateral stays 21 having their lower ends fixed to the longitudinal beams 1 and a forestay 22 which divides at 23 to form two lower portions 24 secured to the forward ends of the longitudinal beams 1.

A boom 25 and sail 26 are carried by the mast 20 in the usual manner. A pair of rudders 27 are mounted in the normal manner one at the rear end of each of the longitudinal beams 1 and have their tiller arms 28 pivotally interconnected by a link bar 29.

The hulls 7 can be inflated or deflated through conventional valves 30. Dismantling the catamaran involves unstepping the mast and its rigging. Undoing the lacing 16 sliding the two half decks 15 from cross beams 2, 3 removing the four bolts 6 which releases 2, 3, also cross members 19 from beams 1. Undoing lacing 14, 13 to allow release of beam 1.

The hulls can then be deflated for transport from example in the boot of a car with mast boom and beams on a roof rack.

#### CLAIMS

1. A boat comprising a pair of inflatable hulls, a pair of torsionally stiff longitudinal beams, one for each hull, securing means attaching each said longitudinal beam to the top of the respective hull and extending substantially the whole length of the hull when the latter is inflated, a pair of cross beams interconnecting the longitudinal beams at spaced positions along the lengths of the longitudinal beams and means securing the cross beams to the longitudinal beams at said spaced positions against torques generated in the longitudinal beams.

2. A boat according to claim 1, wherein a mast is stepped on the forward cross beam.

3. A boat according to claim 2, wherein fore-stays for the mast are anchored to the forward ends of the longitudinal beams.

4. A boat according to any of claims 1 to 3, wherein each hull is substantially tubular and tapers down towards a tip at the bow end of the hull, said tip being spaced below the general axis of the longitudinal beam, and each said hull includes means for spacing the said bow end of the inflatable portion of the hull a fixed predetermined distance below the axis of the respective beam.

5. A boat according to claim 4, in which the spacer means in each hull comprise a stiff, narrow bow stem fixed to the bow end of the inflatable hull portion and to the forward end of the longitudinal beam.

6. A boat according to any of claims 1 to 5, including a pair of rudders, each rudder being pivotally mounted at the aft end of a respective said longitudinal beam each said rudder having a tiller, the boat further including a tie rod interconnecting the tillers for

linked operation thereof.

7. A boat according to any of the preceding claims, including a pair of dagger-boards respectively mounted for vertical sliding movement in dagger boxes, one adjacent each hull, the dagger boxes being supported by two further cross beams anchored to the longitudinal beams.

8. A boat according to any of the preceding claims, in which a trampoline deck is secured to the longitudinal and cross beams and is tightened by lacing means.

9. A boat according to any of the preceding claims, in which the longitudinal beams are secured to their respective inflatable hull portions by lacing means.

10. A boat substantially as hereinbefore described with reference to the accompanying drawings.

Printed for Her Majesty's Stationery Office  
by Burgess & Son (Abingdon) Ltd.—1980.  
Published at The Patent Office, 25 Southampton Buildings,  
London, WC2A 1AY, from which copies may be obtained.